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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,118	03/16/2001	Jennifer L. Hillman	PF-0530-1 DIV	1102

7590 05/23/2003

Legal Department
Incyte Genomics Inc
3160 Porter Drive
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EXAMINER
YAEN, CHRISTOPHER H

ART UNIT	PAPER NUMBER
1642	9

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/811,118	HILLMAN ET AL.	
	Examiner	Art Unit	
	Christopher H Yaen	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the corresp ndence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-14,20,21 and 38-43* is/are pending in the application.

4a) Of the above claim(s) *1,2,7,12-14,20,21,40 and 41* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-6,9-11,38,39,42 and 43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The amendment filed 2/12/2003 (paper no. 7) is acknowledged and entered into the record. Accordingly, claims 15 and 17 are canceled without prejudice or disclaimer.

2. Claims 1-7, 9-14, 20-21, 38-43 are pending in the instant application. Claims 1-2, 7, 12-14, 20-21, and 40-41 are withdrawn from further consideration as being drawn to non-elected subject matter. Applicant s reminded to cancel all claims drawn to non-elected subject matter.

3. Therefore, claims 3-6, 9-11, 38-39, and 42-43 are examined on the merits.

Information Disclosure Statement

4. The Information Disclosure Statement filed 2/11/2003 (paper no. 6) is acknowledged and considered. A signed copy of the IDS is attached hereto.

Claim Rejections Maintained - 35 USC § 112, 1st paragraph

5. The rejection of claims 3-6, 9-11, and 38-39 under 35 USC 112, 1st paragraph as lacking an enabling disclosure is withdrawn in view of the arguments presented by the applicant.

Claim Rejections Maintained - 35 USC § 112, 2nd paragraph

6. The rejection of claims 3-6, and 38 under 35 USC 112, 2nd paragraph for being indefinite is withdrawn in view of the arguments presented by the applicant.

Claim Rejections Maintained - 35 USC § 112, 1st paragraph

The rejection of claims 3 under 35 USC 102 (a) as being anticipated by Mullineaux PM *et al* is withdrawn in view of the amendments presented by the applicant.

Claim Rejections Maintained - 35 USC § 101

7. The rejection of claims 3-6, 9-11, 38-39 and now newly added claims 42-43 under 35 USC 101 as lacking a substantial, specific, and credible utility is maintained for the reasons of record. Applicant argues that the specification provides a well established utility, wherein the utility is gene and protein expression monitoring. Applicant also furnishes a declaration by Dr. Bedilion (herein referred to as the Bedilion declaration), wherein the declaration details the specific utilities for the instantly claimed polynucleotides. Applicant's arguments have been carefully considered but are not found persuasive. Generally, the art acknowledges that function cannot be predicted based solely on structural similarity to a protein found in the sequence databases. Bork (2000, Genome Research 10:398-400) states that the error rate of functional annotations in the sequence database is considerable, making it even more difficult to infer correct function from a structural comparison of a new sequence with a sequence database (see especially p. 399). Bowie et al. (1990, Science 247:1306-1310) state that determination of three dimensional structure from primary amino acid sequence, and the subsequent inference of detailed aspects of function from structure is extremely complex and unlikely to be solved in the near future (p. 1306). Thus, the specification fails to support the asserted credible, specific and substantial utility of hydroperoxide glutathione perioxidase activity.

The specification does not support a credible, specific and substantial utility regarding the claimed polynucleotides encoding GPx6s and variants thereof for purposes unrelated to the asserted biological activity. For example, the specification

asserts that the claimed polynucleotides are involved in the same biological functions as that described for the glutathione perioxidase and disorders based solely on the structural similarity between the perioxidases. The specification does not disclose a correlation between any specific disorder and an altered level or form of the claimed polynucleotides. Also, the specification does not predict whether the claimed polynucleotides would be overexpressed or underexpressed in a specific, diseased tissue compared to the healthy tissue control. The specification contains assertions that the claimed polynucleotides can be used in gene expression monitoring assays, which are used in the art for drug development and toxicology studies. However, without a disclosure of a particular disease state in which the claimed polynucleotides are expressed at an altered level or form, it would be impossible to determine what the results of a gene expression monitoring assay mean. For example, if a compound is tested on a microarray comprising the claimed polynucleotides and affects expression of the polynucleotides negatively, it cannot be determined if that means that the compound is a potential good drug for a disease or would acerbate the disease if administered. The test results also would not have meaning in terms of what specific disease is relevant. The asserted utility in gene expression monitoring assays is thus not substantial, because significant further research would have to be conducted to determine which diseases correlate with altered forms or levels of the claimed polynucleotides, and whether the claimed polynucleotides are overexpressed or underexpressed in the diseased tissue. Furthermore, since any expressed

polynucleotide can be added to a microarray for gene expression monitoring, the asserted utility is not specific to the claimed polynucleotides.

The instant application has failed to provide guidance as to how one of skill in the art could use the claimed invention in a way that constitutes a credible, specific and substantial utility. The proposed uses of the claimed invention are simply starting points for further research and investigation into potential practical uses of the claimed nucleic acids. "Congress intended that no patent be granted on a chemical compound whose sole 'utility' consists of its potential role as an object of use-testing." *Brenner v. Manson*, 148 USPQ at 696.

The specification does not disclose that the claimed genes are markers for specific diseases. Absent a disclosure of altered levels or forms of a gene in diseased tissue as compared with the corresponding healthy tissue, the gene is not a disease marker or an appropriate target for drug discovery or toxicology testing. Finally, evidence of commercial success, while sometimes persuasive as secondary evidence of non-obviousness, is immaterial to utility and enablement. Many products have enjoyed commercial success due to fads or clever advertising, wherein the products would not have met the legal standards for utility and enablement.

Applicant characterizes the Bedilion declaration as describing some of the practical uses of the claimed invention in gene and protein expression monitoring applications. In particular, applicant states that the Bedilion declaration describes how the claimed expressed polynucleotide can be used in gene expression monitoring systems that were well-known at the time of the invention, and how those applications

are useful in developing drugs and monitoring their activity. Appellant quotes from the Bedilion declaration, that states that microarrays containing SEQ ID NO: 2-encoding would be a more useful tool than microarrays lacking same in connection with conducting gene expression monitoring studies on proposed or actual drugs for treating cell proliferative and developmental disorders for such purposes as evaluating their efficacy and toxicity. This is not found to be persuasive. As an aside, it is noted that Dr. Bedilion is a consultant for Incyte Pharmaceuticals, Inc., the real party in interest in this appeal, and thus is a concerned party. Regarding the merit of the argument, any new polynucleotide can be used in a microarray, and thus this asserted utility is not specific. Also, the disclosure that GPx6 is structurally related to glutathione perioxidases does render the asserted utility specific, since the specification does not establish that GPx6 is expressed in any diseased tissues in any way that is different from the way it is expressed in healthy forms of the same tissues. Thus, it is not a target for drug development, toxicology studies, or disease diagnosis. Significant further research would have to be conducted to identify diseases states which correlate with altered levels or forms of the claimed polynucleotides. Therefore, this asserted utility is also not substantial.

Claim Rejections Maintained - 35 USC § 112, 1st paragraph

8. The rejection of claims 3-6, 9-11, 38-39 and now newly added claims 42-43 under 35 USC 112, 2nd paragraph as lacking proper written description is maintained for the reasons of record. Applicant argues that the specification adequately defines a genus of polynucleotides that would fall within the scope of variants of SEQ ID No: 2.

Applicant further argues that the skilled artisan would be able to interpret from the specification variants that were 90% identical to SEQ ID No: 2 because the sequence of SEQ ID No: 2 was provided. Applicant also argues that the claimed genus of sequences is rather limited and do not constitute variants that are "highly variant." Applicant's arguments have been carefully considered but are not found persuasive. Because at the time of filing, the chemical identity of SEQ ID No: 2 (i.e the sequence was disclosed) was the only one disclosed in the specification, one of skill in the art would not be able to determine if the applicant had within there possession at the time of filing any and all polynucleotides that were 90% identical to SEQ ID No: 2. In order for the applicant to be entitled to the genus of variants that are 90%identical to SEQ ID No: 2, applicant must disclose a representative number of sequences that correspond the genus of variants. The specification has not disclosed any of this information, and therefore, the applicant is only entitled to what was in their possession at the time of filing. Even assuming that the sequences desired where not highly variant, the applicant has not provided a specific nucleotide sequence which would represent variants that were 90% identical. And lastly, because the claimed invention is drawn to nucleotide sequences, the difference between the disclosed nucleotide sequence of SEQ ID No: 2 and that which is 90% identical would represent a large number of nucleotide differences which may thereby cause the expression of different proteins unrelated to the protein which is encoded by SEQ ID No: 2.

Conclusion

9. No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher H Yaen whose telephone number is 703-305-3586. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Caputa can be reached on 703-308-3995. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Christopher Yaen
Art Unit 1642
May 16, 2003

ANTHONY C. CAPUTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600